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Diamond Lake, Pend Oreille County, Washington

(U.S.) National Eutrophication Survey, Las Vegas, NV

Prepared for

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Dec 77

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NATIONAL EUTROPHICATION SURVEY

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16. ABSTRACT

Annual total phosphorus and total nitrogen loadings to the lake were estimated and subdivided according to either point or non-point source origin. An assessment of the lake's trophic condition and limiting nutrient is also provided. All data collected by the U.S.E.P.A. National Eutrophication Survey during the one year study of the lake and its tributaries are included in the report.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
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REPORT
ON
DIAMOND LAKE
PEND OREILLE COUNTY
WASHINGTON
EPA REGION X
WORKING PAPER No. 367

WITH THE COOPERATION OF THE
WASHINGTON DEPARTMENT OF ECOLOGY
AND THE
WASHINGTON NATIONAL GUARD

DECEMBER, 1977

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FOREWORD

The National Eutrophication Survey was initiated in 1972 in response to an Administration commitment to investigate the nationwide threat of accelerated eutrophication to freshwater lakes and reservoirs.

OBJECTIVES

The Survey was designed to develop, in conjunction with state environmental agencies, information on nutrient sources, concentrations, and impact on selected freshwater lakes as a basis for formulating comprehensive and coordinated national, regional, and state management practices relating to point source discharge reduction and nonpoint source pollution abatement in lake watersheds.

ANALYTIC APPROACH

The mathematical and statistical procedures selected for the Survey's eutrophication analysis are based on related concepts that:

a. A generalized representation or model relating sources, concentrations, and impacts can be constructed.

b. By applying measurements of relevant parameters associated with lake degradation, the generalized model can be transformed into an operational representation of a lake, its drainage basin, and related nutrients.

c. With such a transformation, an assessment of the potential for eutrophication control can be made.

LAKE ANALYSIS

In this report, the first stage of evaluation of lake and watershed data collected from the study lake and its drainage basin is documented. The report is formatted to provide state environmental agencies with specific information for basin planning [§303(e)], water quality criteria/standards review [§303(c)], clean lakes [§314(a,b)], and water quality monitoring [§106 and §305(b)] activities mandated by the Federal Water Pollution Control Act Amendments of 1972.

Beyond the single lake analysis, broader based correlations between nutrient concentrations (and loading) and trophic condition are being made to advance the rationale and data base for refinement of nutrient water quality criteria for the Nation's freshwater lakes. Likewise, multivariate evaluations for the relationships between land use, nutrient export, and trophic condition, by lake class or use, are being developed to assist in the formulation of planning guidelines and policies by the U.S. Environmental Protection Agency and to augment plans implementation by the states.

ACKNOWLEDGMENTS

The staff of the National Eutrophication Survey (Office of Research and Development, U.S. Environmental Protection Agency) expresses sincere appreciation to the Washington Department of Ecology for professional involvement, to the Washington National Guard for conducting the tributary sampling phase of the Survey, and to those Washington wastewater treatment plant operators who provided effluent samples and flow data.

Ms. Barbara Blau, Lake Restoration Program, and the staff of the Washington Department of Ecology, Lake Restoration Program, provided invaluable lake documentation and counsel during the Survey, reviewed the preliminary reports and provided critiques most useful in the preparation of this Working Paper Series.

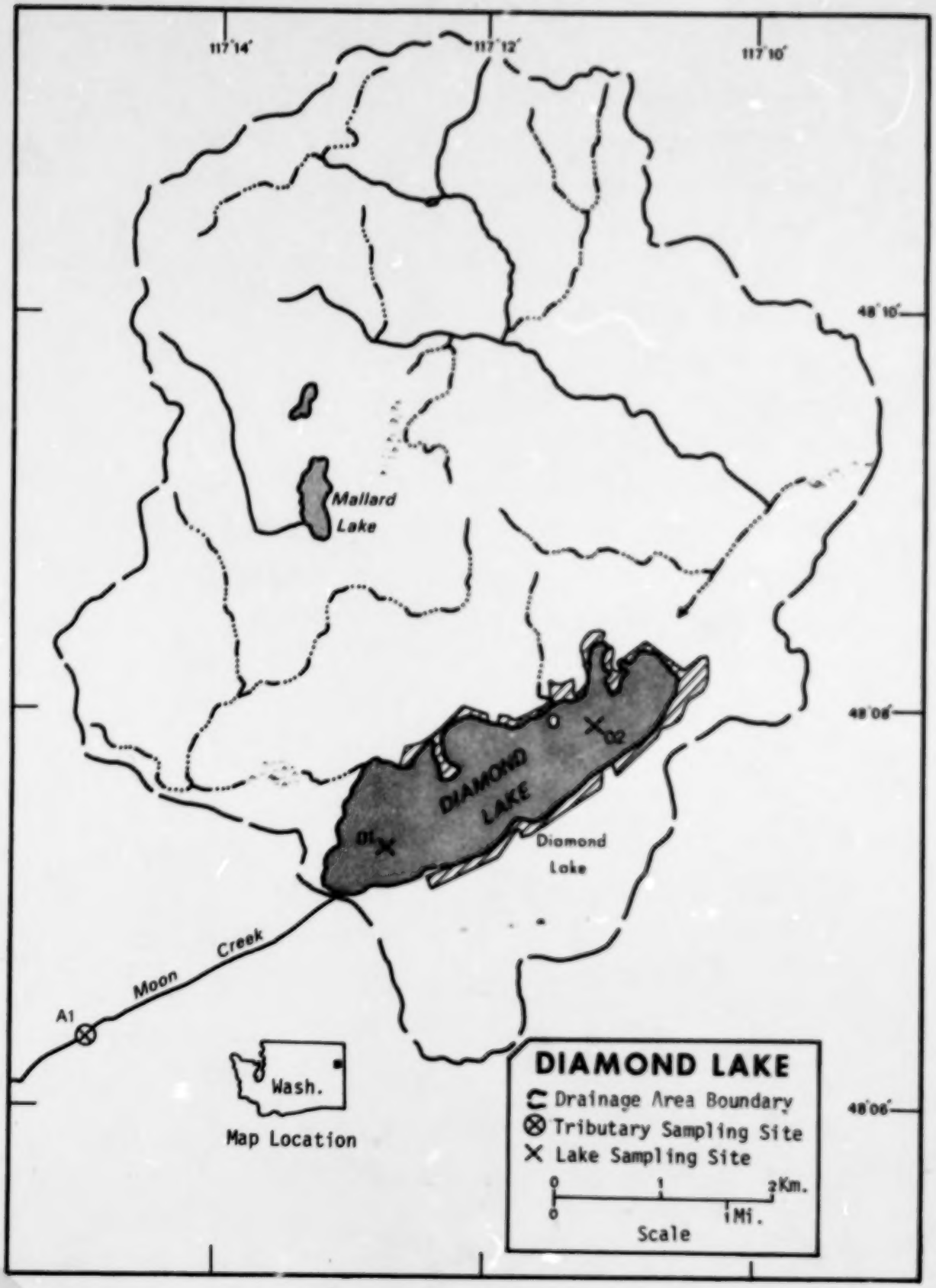
Major General Howard S. McGee, Adjutant General of Washington, and Project Officer Colonel Clinton C. Johnson, who directed the volunteer efforts of the Washington National Guardsmen, are also gratefully acknowledged for their assistance to the Survey.

NATIONAL EUTROPHICATION SURVEY

STUDY LAKES

STATE OF WASHINGTON

LAKE NAME	COUNTY
American Lake	Pierce
Banks Lake	Grant, Douglas
Chelan Lake	Chelan
Diamond Lake	Pend Oreille
Green Lake	King
Keechelus Lake	Kittitas
Mayfield Lake	Lewis
Medical Lake	Spokane
Moses Lake	Grant
Ozette Lake	Clallam
Sammamish Lake	King
Lake Whatcom	Whatcom
Lower Granite Reservoir	Garfield, Whatcom


117°14'
117°12'
117°10'
48°10'
48°08'
48°06'
Mallard Lake
DIAMOND LAKE
02
01
Diamond Lake
Moon Creek
A1
Wash.
Map Location
DIAMOND LAKE
Drainage Area Boundary
Tributary Sampling Site
Lake Sampling Site
0 1 2 Km.
0 1 Mi.
Scale

DIAMOND LAKE

STORET NO. 5304

I. INTRODUCTION

Diamond Lake was included in the National Eutrophication Survey as a water body of interest to the Washington State Department of Ecology. The outlet was the only stream sampled, and this report relates only to lake sampling data. However, the outlet data (Moon Creek) are included in Appendix C for the record.

Diamond Lake is a natural water body located in northeastern Washington near the city of Newport. A popular recreation site, the shoreline is almost entirely surrounded by dwellings and commercial establishments. Good catches of rainbow trout, cutthroat trout, and crappies are maintained by periodic stocking. Some phytoplankton problems have been reported in the past (Wolcott, 1973; Cline, 1975; Millenbach, 1975).

II. CONCLUSIONS

A. Trophic Condition*:

Survey data indicate that Diamond Lake is eutrophic. It ranked eighth in overall trophic quality among the 13 Washington lakes and reservoirs sampled in 1975 when compared using a combination of six water quality parameters**. Four of the water bodies had less and one had the same median total phosphorus, nine had less median orthophosphorus, three had less median

---

* Trophic assessment is based on the levels of nutrients, dissolved oxygen, and chlorophyll a; phytoplankton kinds and numbers; and transparency (Allum et al., 1977).

** See Appendix A.

inorganic nitrogen, ten had less mean chlorophyll a, and three had greater mean Secchi disc transparency. Depression of hypolimnetic dissolved oxygen occurred at station 2 in July and September.

Survey limnologists noted submerged macrophytes throughout the lake and emergent vegetation along much of the shoreline. The relatively high chlorophyll a levels at station 1 in July and September (page 7) further indicate an enriched condition.

B. Rate-Limiting Nutrient:

The algal assay results indicate Diamond Lake was phosphorus limited at the time the sample was collected (10/24/75). The lake data indicate phosphorus limitation in September and October but nitrogen limitation in June and July.

III. LAKE AND DRAINAGE BASIN CHARACTERISTICS†

A. Morphometry††:

1. Surface area: 3.07 kilometers^2.
2. Mean depth: 8.1 meters.
3. Maximum depth: 17.7 meters.
4. Volume: 24.787 x 10^6 m^3.

B. Precipitation*:

1. Year of sampling: 66.5 centimeters.
2. Mean annual: 50.3 centimeters.

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† Table of metric equivalents--Appendix B.
†† Wolcott, 1973.
* See Working Paper No. 175, "...Survey Methods, 1973-1976".

IV. WATER QUALITY SUMMARY

Diamond Lake was sampled four times during the open-water season of 1975 by means of a pontoon-equipped Huey helicopter. Each time, samples for physical and chemical parameters were collected from one or more depths at two stations on the lake (see map, page v). During the first three visits, a single depth-integrated (4.6 m or near bottom to surface) sample was composited from the stations for phytoplankton identification and enumeration; and during the last visit, a single 18.9-liter depth-integrated sample was composited for algal assays. Also each time, a depth-integrated sample was collected from each of the stations for chlorophyll *a* analysis. The maximum depths sampled were 7.6 meters at station 1 and 15.5 meters at station 2.

The sampling results are presented in full in Appendix C and are summarized in the following table.

A. SUMMARY OF PHYSICAL AND CHEMICAL CHARACTERISTICS FOR DIAMOND LAKE
STORET CODE 5304

PARAMETER	1ST SAMPLING (6/ 4/75) 2 SITES RANGE	MEAN	MEDIAN	2ND SAMPLING (7/23/75) 2 SITES RANGE	MEAN	MEDIAN	3RD SAMPLING (9/16/75) 2 SITES RANGE	MEAN	MEDIAN
TEMP (C)	8.2 - 15.8	13.4	14.2	7.6 - 21.3	16.2	19.8	6.3 - 16.7	13.9	14.7
DISS OXY (MG/L)	6.2 - 9.6	8.4	8.8	3.2 - 10.2	7.2	8.9	0.8 - 9.2	7.7	8.7
CNDCTVY (MCROMO)	48. - 56.	53.	54.	41. - 70.	56.	58.	47. - 59.	54.	53.
PH (STAND UNITS)	7.2 - 8.6	8.0	8.1	6.8 - 8.9	7.9	8.1	7.3 - 8.1	7.8	7.8
TOT ALK (MG/L)	36. - 43.	39.	39.	35. - 47.	38.	37.	32. - 60.	39.	37.
TOT P (MG/L)	0.012 - 0.053	0.022	0.019	0.009 - 0.048	0.026	0.026	0.002 - 0.351	0.051	0.007
ORTHO P (MG/L)	0.012 - 0.021	0.016	0.016	0.010 - 0.022	0.013	0.012	0.002 - 0.010	0.003	0.002
NO2+NO3 (MG/L)	0.030 - 0.060	0.037	0.030	0.020 - 0.050	0.029	0.020	0.020 - 0.020	0.020	0.020
AMMONIA (MG/L)	0.050 - 0.120	0.074	0.060	0.040 - 0.270	0.112	0.075	0.020 - 0.160	0.041	0.020
KJEL N (MG/L)	0.400 - 0.800	0.529	0.500	0.500 - 1.300	0.775	0.700	0.200 - 3.400	0.700	0.300
INORG N (MG/L)	0.080 - 0.180	0.111	0.090	0.060 - 0.310	0.141	0.095	0.040 - 0.180	0.061	0.040
TOTAL N (MG/L)	0.430 - 0.850	0.566	0.530	0.520 - 1.320	0.804	0.735	0.220 - 3.420	0.720	0.320
CHLRPYL A (UG/L)	2.0 - 2.0	2.0	2.0	4.0 - 41.8	22.9	22.9	3.3 - 56.6	29.9	29.9
SECCHI (METERS)	5.2 - 5.2	5.2	5.2	7.0 - 7.0	7.0	7.0	2.2 - 8.5	5.4	5.4

A. SUMMARY OF PHYSICAL AND CHEMICAL CHARACTERISTICS FOR DIAMOND LAKE
STORET CODE 5304

4TH SAMPLING (10/24/75)

2 SITES

PARAMETER	RANGE	MEAN	MEDIAN
TEMP (C)	11.3 - 13.1	12.7	13.1
DISS OXY (MG/L)	7.8 - 8.6	8.1	8.1
CNDCTVY (MCROMO)	29. - 55.	37.	34.
PH (STAND UNITS)	7.9 - 9.0	8.3	8.1
TOT ALK (MG/L)	33. - 42.	37.	36.
TOT P (MG/L)	0.011 - 0.052	0.020	0.014
ORTHO P (MG/L)	0.002 - 0.007	0.003	0.002
NO2+NO3 (MG/L)	0.020 - 0.020	0.020	0.020
AMMONIA (MG/L)	0.030 - 0.130	0.050	0.035
KJEL N (MG/L)	0.300 - 0.800	0.483	0.400
INORG N (MG/L)	0.050 - 0.150	0.070	0.055
TOTAL N (MG/L)	0.320 - 0.820	0.503	0.420
CHLRPYL A (UG/L)	3.0 - 3.6	3.3	3.3
SECCHI (METERS)	1.8 - 5.2	3.5	3.5

B. Biological characteristics:

1. Phytoplankton*-

Sampling Date	Dominant Genera	Algal Units per ml
06/04/75	1. Dinobryon sp.	306
	2. Cyclotella sp.	167
	3. Oocystis sp.	56
	4. Chroomonas sp.	56
	5. Cryptomonas sp.	28
	Other genera	83
	Total	696
07/23/75	1. Phormidium sp.	969
	2. Gleocapsa sp.	588
	3. Anabaena sp.	554
	4. Eunotia sp.	554
	5. Cosmarium sp.	242
	Other genera	2,147
	Total	5,054
09/16/75	1. Chroococcus sp.	366
	2. Scytonema sp.	284
	3. Cyclotella sp.	284
	4. Eunotia sp.	244
	5. Navicula sp.	244
	Total	3,578

2. Chlorophyll a -

Sampling Date	Station Number	Chlorophyll a (µg/l)
06/04/75	1	2.0
	2	2.0
07/23/75	1	41.8
	2	4.0
09/16/75	1	56.6
	2	3.3
10/24/75	1	3.0
	2	3.6

* The October phytoplankton sample was lost in shipment.

C. Limiting Nutrient Study:

1. Autoclaved, filtered, and nutrient spiked -

Spike (mg/l)	Ortho P Conc. (mg/l)	Inorganic N Conc. (mg/l)	Maximum yield (mg/l-dry wt.)
Control	0.005	0.070	0.4
0.050 P	0.055	0.070	2.2
0.050 P + 1.0 N	0.055	1.070	28.6
1.0 N	0.005	1.070	0.4

2. Discussion -

The control yield of the assay alga, Selenastrum capricornutum, indicates that the potential primary productivity of Diamond Lake was moderate at the time the sample was collected (10/24/75). Also, the significant increase in yield with the addition of orthophosphorus alone indicates the lake was phosphorus limited at that time. Note that the addition of nitrogen alone resulted in a yield no greater than that of the control.

The lake data indicate phosphorus limitation in September and October (the mean inorganic nitrogen/orthophosphorus ratios were 20/1 or greater). However, nitrogen limitation is indicated in June and July; i.e., the mean N/P ratios were 11/1 or less, and nitrogen limitation would be expected (N/P ratios of 14/1 or greater generally indicate phosphorus limitation).

V. MEAN NUTRIENT CONCENTRATIONS IN UNGAGED STREAM:

Tributary	Mean Total P Conc. (mg/l)	Mean Total N Conc. (mg/l)
Moon Creek	0.030	0.855

VI. LITERATURE REVIEWED

Allum, M.O., R.E. Glessner, and J.H. Gakstatter, 1977. An evaluation of the National Eutrophication Survey data. Working Paper No. 900, Corvallis Env. Res. Lab., Corvallis, OR.

Cline, Charles, 1975. Personal communication. WN State Dept. of Ecology, Olympia.

Millenbach, Cliff, 1975. Personal communication. WN State Dept. of Game, Olympia.

Wolcott, Ernest E., 1973. Lakes of Washington. Volume II - Eastern Washington. Water Supply Bull. No. 15., WN State Dept. of Ecology, Olympia.

VII. APPENDICES

APPENDIX A

LAKE RANKINGS

LAKE DATA TO BE USED IN RANKINGS

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500-MEAN SEC	MEAN CHLORA	15-MIN DO	MEDIAN DISS ORTHO P
5301	AMERICAN LAKE	0.027	0.105	343.000	4.822	15.000	0.007
5302	BANKS LAKE	0.021	0.040	364.533	7.373	10.800	0.007
5303	CHELAN LAKE	0.005	0.070	111.900	0.905	6.400	0.003
5304	DIAMOND LAKE	0.014	0.060	303.667	14.537	14.200	0.010
5305	GREEN LAKE	0.027	0.050	415.000	2.983	10.600	0.009
5306	KEECHELUS LAKE	0.007	0.040	280.250	1.400	9.200	0.002
5307	MAYFIELD LAKE	0.014	0.100	402.000	4.250	10.600	0.007
5308	MEDICAL LAKE	0.275	0.225	401.714	16.425	15.000	0.166
5309	MOSES LAKE	0.115	0.150	463.600	29.060	14.600	0.038
5310	OZETTE LAKE	0.010	0.110	403.333	1.225	7.200	0.009
5311	SAMMAMISH LAKE	0.015	0.210	374.000	7.290	14.600	0.006
5312	WHATCOM LAKE	0.009	0.320	288.000	3.422	10.800	0.009
5313	LOWER GRANITE RESERVOIR	0.033	0.150	435.500	4.875	7.200	0.022

PERCENT OF LAKES WITH HIGHER VALUES (NUMBER OF LAKES WITH HIGHER VALUES)

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500-MEAN SEC	MEAN CHLORA	15-MIN DO	MEDIAN DISS ORTHO P	INDEX NO
5301	AMERICAN LAKE	29 (3)	50 (6)	67 (8)	50 (6)	4 (0)	58 (7)	258
5302	BANKS LAKE	42 (5)	100 (12)	58 (7)	25 (3)	46 (5)	71 (8)	342
5303	CHELAN LAKE	100 (12)	67 (8)	100 (12)	100 (12)	100 (12)	92 (11)	559
5304	DIAMOND LAKE	62 (7)	75 (9)	75 (9)	17 (2)	33 (4)	25 (3)	287
5305	GREEN LAKE	29 (3)	83 (10)	17 (2)	75 (9)	62 (7)	46 (5)	312
5306	KEECHELUS LAKE	92 (11)	92 (11)	92 (11)	83 (10)	75 (9)	100 (12)	534
5307	MAYFIELD LAKE	62 (7)	58 (7)	33 (4)	58 (7)	62 (7)	71 (8)	344
5308	MEDICAL LAKE	0 (0)	8 (1)	42 (5)	8 (1)	4 (0)	0 (0)	62
5309	MOSES LAKE	8 (1)	29 (3)	0 (0)	0 (0)	21 (2)	8 (1)	66
5310	OZETTE LAKE	75 (9)	42 (5)	25 (3)	92 (11)	87 (10)	33 (4)	354
5311	SAMMAMISH LAKE	50 (6)	17 (2)	50 (6)	33 (4)	21 (2)	83 (10)	254
5312	WHATCOM LAKE	83 (10)	0 (0)	83 (10)	67 (8)	46 (5)	46 (5)	325
5313	LOWER GRANITE RESERVOIR	17 (2)	29 (3)	8 (1)	42 (5)	87 (10)	17 (2)	200

LAKES RANKED BY INDEX NOS.

RANK	LAKE CODE	LAKE NAME	INDEX NO
1	5303	CHELAN LAKE	559
2	5306	KEECHELUS LAKE	534
3	5310	OZETTE LAKE	354
4	5307	MAYFIELD LAKE	344
5	5302	BANKS LAKE	342
6	5312	WHATCOM LAKE	325
7	5305	GREEN LAKE	312
8	5304	DIAMOND LAKE	287
9	5301	AMERICAN LAKE	258
10	5311	SAMMAMISH LAKE.	254
11	5313	LOWER GRANITE RESERVOIR	200
12	5309	MOSES LAKE	66
13	5308	MEDICAL LAKE	62

APPENDIX B

CONVERSION FACTORS

CONVERSION FACTORS

Hectares x 2.471 = acres

Kilometers x 0.6214 = miles

Meters x 3.281 = feet

Cubic meters x 8.107×10^{-4} = acre/feet

Square kilometers x 0.3861 = square miles

Cubic meters/sec x 35.315 = cubic feet/sec

Centimeters x 0.3937 = inches

Kilograms x 2.205 = pounds

Kilograms/square kilometer x 5.711 = lbs/square mile

APPENDIX C

PHYSICAL and CHEMICAL DATA

STORET RETRIEVAL DATE 77/03/07

530401
48 07 28.0 117 12 38.0 3
DIAMOND LAKE
53051 WASHINGTON
130391

/TYPA/AMBNT/LAKE

11EPALES 04001002
0007 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 N02&N03 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
75/06/04	09 45	0000	14.2	7.4		54	8.30	43	0.090	0.400	0.030	0.018
	09 45	0005	14.2	9.2		54	8.60	42	0.060	0.400	0.030	0.021
75/07/23	10 25	0000	21.2	9.0		64	8.90	47	0.110	1.000	0.020K	0.022
	10 25	0005	20.7	8.8		64	8.85	36	0.040	1.300	0.020K	0.011
75/09/16	16 00	0000	16.7	8.6	336	59	7.80	39	0.020K	0.400	0.020K	0.002K
	16 00	0005	16.4	9.0		58	7.90	40	0.020K	0.400	0.020K	0.003
	16 00	0025	13.8	9.2		53	7.80	60	0.040	3.400	0.020K	0.010
75/10/24	09 10	0000	11.3	8.6	72	29	9.00	41	0.030	0.400	0.020K	0.002K

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 77/03/07

530401
48 07 28.0 117 12 38.0 3
DIAMOND LAKE
53051 WASHINGTON
130391

/TYPA/AMBNT/LAKE

11EPALES 04001002
0007 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L	00031 INCDT LT REMNING PERCENT
75/06/04	09 45	0000	0.019	2.0	
	09 45	0005	0.019		
75/07/23	10 25	0000	0.041	41.8	
	10 25	0005	0.048		
75/09/16	16 00	0000	0.007	56.6	
	16 00	0005	0.007		
	16 00	0025	0.351		
75/10/24	09 10	0000	0.014	3.0	

STORET RETRIEVAL DATE 77/03/07

530402
48 07 58.0 117 10 05.0 3
DIAMOND LAKE
53051 WASHINGTON
130392

/TYPA/AMBNT/LAKE

11EPALES 04001002
0055 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
75/06/04	10	0000	15.8	9.0	204	56	8.60	38	0.060	0.400	0.030	0.017K
	10	0005	15.8	9.6		56	7.95	36	0.050	0.500	0.030	0.012
	10	0015	15.2	8.8		55	8.10	40	0.050	0.600	0.030	0.016K
	10	0025	10.3	8.6		50	7.35	36	0.120	0.600	0.060	0.014
	10	0051	8.2	6.2		48	7.20	39	0.090	0.800	0.050	0.012
75/07/23	10	0000	21.3	10.2	276	56	8.30	35	0.040	0.800	0.020K	0.010
	10	0005	21.3	9.6		70	8.40	35	0.040	0.600	0.020K	0.012
	10	0015	18.9	9.6		59	8.00	36	0.040	0.500	0.020K	0.011
	10	0030	10.9	4.2		43	6.90	37	0.180	0.600	0.050	0.013
	10	0040	8.0	3.2		47	7.20	41	0.180	0.600	0.040	0.012
	10	0050	7.6	3.2		41	6.80	39	0.270	0.800	0.040	0.014
75/09/10	15	0000	16.2	9.0	86	52	8.10	32	0.020K	0.200	0.020K	0.002
	15	0005	15.4	8.8		53	8.05	33	0.020K	0.200	0.020K	0.002
	15	0017	14.1	8.6		53	7.80	34	0.020K	0.200	0.020K	0.004
	15	0030	12.2	7.6		47	7.50	32	0.030	0.200	0.020K	0.002K
	15	0051	6.3	0.8		53	7.30	41	0.160	0.600	0.020K	0.002K
75/10/24	09	0000	13.1	8.0	204	33	8.40	33	0.040	0.400	0.020K	0.002
	09	0005	13.1	7.8		33	8.15	39	0.040	0.600	0.020K	0.007
	09	0015	13.1	8.0		35	8.10	42	0.030	0.300	0.020K	0.002
	09	0030	13.1	8.2		35	8.00	33	0.030	0.400	0.020K	0.005
	09	0050	12.7	8.2		55	7.90	33	0.130	0.800	0.020K	0.003

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 77/03/07

530402
48 07 58.0 117 10 05.0 3
DIAMOND LAKE
53051 WASHINGTON
130392

/TYPA/AMBNT/LAKE

11EPALES 04001002
0055 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L	00031 INCDT LT REMNING PERCENT
75/06/04	10 10	0000	0.012	2.0	
	10 10	0005	0.012		
	10 10	0015	0.012		
	10 10	0025	0.026		
	10 10	0051	0.053		
75/07/23	10 40	0000	0.030	4.0	
	10 40	0005	0.029		
	10 40	0015	0.009		
	10 40	0030	0.016		
	10 40	0040	0.012		
	10 40	0050	0.024		
75/09/10	15 40	0000	0.002K	3.3	
	15 40	0005	0.002K		
	15 40	0017	0.006		
	15 40	0030	0.007		
	15 40	0051	0.023		
75/10/24	09 25	0000	0.014	3.6	
	09 25	0005	0.017		
	09 25	0015	0.011		
	09 25	0030	0.013		
	09 25	0050	0.052		

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 77/03/07

5304A1
48 06 25.0 117 15 03.0 4
MOON CREEK
53 7.5 ELK
O/DIAMOND LAKE 130591
SEC RD BRDG .5 MI N OF HWY 2 JCT
11EPALES 04001004
0000 FEET DEPTH CLASS 00

/TYPA/AMBNT/STREAM

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
74/09/22	10 00		0.016	0.400	0.010	0.010	0.015
74/10/25	13 00		0.008	0.200	0.015	0.015	0.015
74/12/03	11 00		0.384	0.400	0.230	0.010	0.030
75/05/14	13 20		0.020	1.100	0.040	0.020	0.040
75/07/11	15 30		0.015	1.450	0.060	0.015	0.030
75/08/06	14 40		0.010	1.125	0.045	0.015	0.050